

SigenStor Home Installation Guide

Single-phase System A1





Version: 03 Release date: 2024-03-22

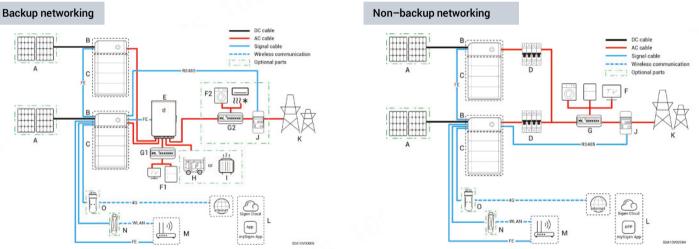
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Caution

- · Trained or experienced electrical personnel are required to operate the equipment.
- Operators should be familiar with national/regional laws, regulations and standards, the structure and working principle of relevant systems.
- Please read carefully the operating requirements and precautions in this document and "Important Notice" before operating. Failure to do so may result in damage to the equipment that is not covered by the warranty.
- Please consult with the owner for expansion requirements (for example, adding battery packs) before operating. If any, please reserve necessary expansion space and cable length during installation.

1 Introduction to Single-phase System

1.1 Introduction to Networking



Tips

It is recommended to use FE and WLAN for communication with inverter. Sigen CommMod users must top up their own 4G data plan after a period of 2 years.

| S/N | N Equipment/component Model/version | | Function specification |
|-----|-------------------------------------|---|--|
| Α | A PV module – | | - |
| В | SigenStor EC | SigenStor EC 3.0/3.6/4.0/4.6/5.0/6.0 SP | Inverter; it can be used in photovoltaic energy storage scenarios and needs to be used together with PV modules and SigenStor BAT. |
| | SigenStor AC | SigenStor AC 3.0/3.6/4.0/4.6/5.0/6.0 SP | Inverter; it can be used in pure storage scenarios and needs to be used with SigenStor BAT. |
| | Sigen Hybrid | Sigen Hybrid 3.0/3.6/4.0/4.6/5.0/6.0 SP | Inverter; it can be used in conjunction with PV modules for pure PV applications or in combination with PV modules and SigenStor BAT for photovoltaic storage systems after the purchase and activation of a license. |
| С | SigenStor BAT | SigenStor BAT 5.0/8.0 | Battery pack; it can store electric energy. |
| D | AC switch | - | The rated voltage of the AC switch connected to each inverter should be ≥ 240 Va.c., and the rated current is recommended: • SigenStorEC/SigenStorAC/SigenHybrid (3.0-4.0) SP: The rated current is 25 A. • SigenStorEC/SigenStorAC/SigenHybrid (4.6-6.0) SP: The rated current is 40 A. |
| E | Gateway | Sigen Gateway HomeMax SP Sigen Gateway Home SP | It's applicable for PV storage and pure storage applications to facilitate data acquisition and monitoring, off-grid backup power switching, diesel generator control, energy management; it must be used with SigenStor BAT and inverter. Gateway is a must-have for backup networking; for partial backup power and zero-power grid connection control networking, the Gateway and power sensor must be arranged. |
| F | Home loads | - | In a backup networking system, F1 represents the backup home loads, and F2 represents the non-backup loads. |
| G | Distribution panel | - | In the backup networking, G1 is the backup distribution panel, requiring a residual current device with rated residual operating current of 30 mA; G2 is the non-backup distribution panel. The rated voltage of the AC switch of the distribution panel should be not less than 240 Va.c., And the rated current is recommended: that is, not less than the maximum output current of an inverter × the number of inverters in parallel connection × 1.25^[1]. |

Note [1]: The maximum output current of an inverter can be found in its respective data sheet.

| S/N | Equipment/component | Model/version | Function specification |
|---|-------------------------|---|---|
| н | | | As a backup energy source for long-term off-grid applications, it can work in tandem with the Gateway to provide a smooth transition between PV, storage and diesel generator . |
| c n c c c c c c c c c c c c c c c c c c | | - | Low-priority loads such as heat pumps, pool heaters, clothes dryers, and immersion heaters that can be cut off from the power supply when the stored energy is insufficient. The maximum power for an immersion heater should be \leq 17.6 kW/80 A. |
| J | Power sensor | Sigen Sensor SP–DH (SDM230MODBUS) Sigen Sensor SP–CT120–DH (SDM120CT 40mA) | Data acquisition for grid connection points enables zero-power grid connection. No power sensor is needed for home-wide backup networking. |
| к | Power grid | - | - |
| L | Арр | mySigen | Android 6.0 or later iOS 12.0 onwards |
| М | Router | - | To be used for FE/WLAN communication. |
| Ν | Antenna | - | To be used for WLAN communication. |
| 0 | Communication module | Sigen CommMod | To be used for 4G communication. |

Tips

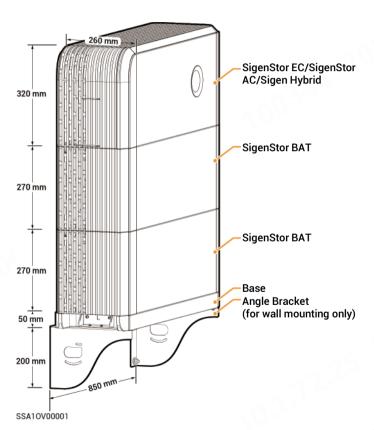
For further information on the installation and wiring of Gateway, refer to the "Sigen Gateway HomeMax SP Installation Guide" and "Sigen Gateway Home SP Installation Guide".

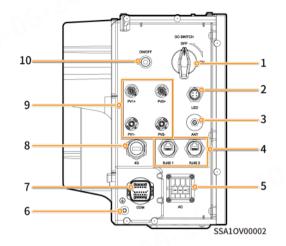
1.2 Appearance and Dimensions

Inverter and battery pack



SigenStor EC/ SigenStor AC/Sigen Hybrid Left View

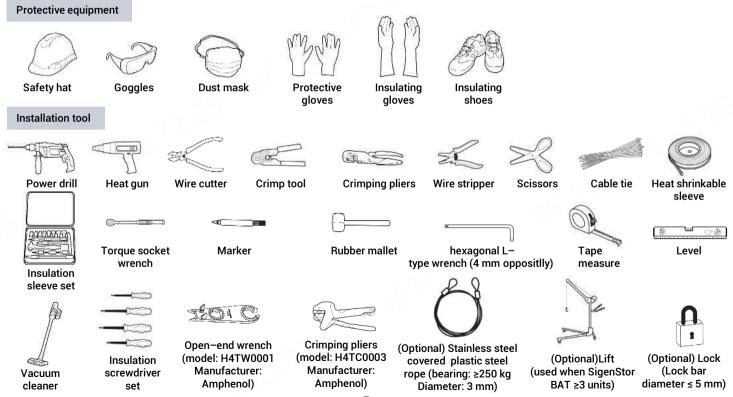




| S/N | Name | Marking |
|-----|--|--------------------------|
| 1 | DC switch | DC SWITCH |
| 2 | Decorative cover light strip connector | LED |
| 3 | Antenna interface | ANT |
| 4 | Cable interface | RJ45 1/ RJ45 2 |
| 5 | AC output interface | AC |
| 6 | Ground screw | - |
| 7 | Communication interface | СОМ |
| 8 | Sigen CommMod interface | 4G |
| 9 | DC input interface | PV1+/PV2+/ PV1- /PV2- |
| 10 | Switch button | ON/OFF |

2 Pre-installation Check

- Check whether the components are entirely supplied against the packing list and whether the appearance is in good condition. For any problem, contact your sales representative.
- Check personal protective equipment and installation tools to ensure that they are complete; If not, please make them up.
- Check and ensure the completeness of personal protective equipment and installation tools; replenish if necessary.



Caution

Installer-provided cable

- The specifications of the Installer-provided cable must comply with the cable regulations and standards of the country or region standards.
- L, N and PE should be connected to other equipment in sequence without mixing.

| S/N | Cable name | Recommended specifications | | |
|---|--------------------|---|--|--|
| 2 AC cable Outdoor three-core copper cable (L, N, PE) | | Outdoor single core copper cable Cross–sectional area of core conductor: 4–6 mm²; | | |
| | | Cross-sectional area of core conductor: 4–6 mm ² ; | | |
| 0.5−1 mm² (single−strand hard conductor, no t Outer diameter: 4.5−6.5 mm Cable length: ≤ 1000 m | | Cross-sectional area of core conductor: 0.5–0.75 mm ² (multi-core flexible conductor, Tubular terminal needed); 0.5–1 mm ² (single-strand hard conductor, no tubular terminal needed) Outer diameter: 4.5–6.5 mm | | |
| 4 | RJ45 network cable | Outdoor eight–conductor shielded twin–twisted pair cable Cross–sectional area of core conductor: 0.13–0.2 mm²; Outer diameter: 4–7.5 mm Single cable length: ≤ 100 m ^[2] | | |
| 5 DC input cable of inverter (Ignore this cable in case of SigenStor AC inverters) Outdoor photovoltaic cable Cross-sectional area of core Outer diameter: 4.5–7.8 mm | | Cross-sectional area of core conductor: 4–6 mm ² ; | | |

Note [2]: The cable length should be limited for good communication. Too long cable degrades the communication effect. FE communication distance: ≤ 100 m.

Tips

Recommended specifications for cables connecting power sensors to Distribution panel and to the grid, as well as step-by-step instructions for wiring, can be found in the accompanying documentation for each respective model.

Tips

The warranty applies when the equipment has been installed properly for its intended use and in accordance with the operating instructions.

Installation environment

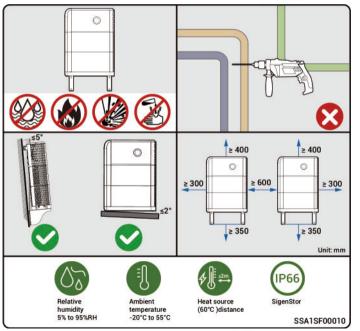
- Do not install the equipment in smoky, flammable, or explosive environments.
- Avoid exposing the equipment to direct sunlight, rain, standing water, snow, or dust. Install the equipment in a sheltered place. Take preventive measures in operating areas prone to natural disasters such as floods, mudslides, earthquakes, and typhoons.
- Do not install the equipment in an environment with strong electromagnetic interference.
- Ensure that the temperature and humidity of the installation environment comply with the equipment's requirements.
- The equipment should be installed in an area that is at least 500 m away from corrosion sources that may result in salt damage or acid damage (corrosion sources include but are not limited to seaside, thermal power plants, chemical plants, smelters, coal plants, rubber plants, and electroplating plants).

Installation position

- Do not tilt or overturn the equipment to ensure that it is installed horizontally.
- · Do not install the equipment in places easily touched by children.
- Do not install the equipment in places with fire or damp.
- · Please keep away from the daily work and living places.
- Do not install the equipment in a sealed, poorly ventilated location without fire protection measures and difficult access for firefighters.
- The equipment will generate heat when operating. If the device is
 installed indoors, please ensure that the room is well ventilated. It
 is prohibited to cause the indoor temperature to rise significantly
 due to the operation of the device.
- Do not install the equipment in mobile scenarios such as RVS, cruise ships, and trains.
- You are advised to install the equipment in a location where you can easily access, install, operate, maintain it, and view the indicator status.
- When installing the equipment in the garage, do not install the equipment in the position where the vehicle passes through to avoid collision.

Mounting surface

- Do not install the equipment on a flammable installation base.
- The installation base should meet the load-bearing requirement. Solid brick-concrete structures, concrete walls, and floors are recommended.
- The surface of the installation base must be smooth and the installation area must meet the installation space requirements.
- No water or electricity is routed inside the installation base to prevent drilling hazards during equipment installation.



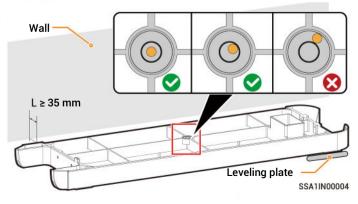
4 Installation of inverter and battery pack

Tips

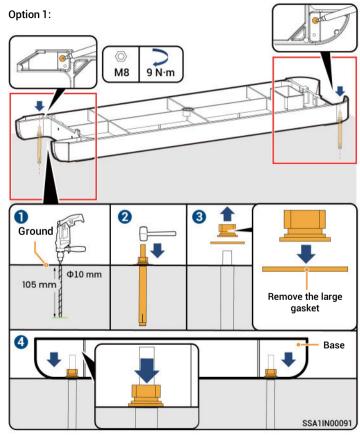
- Up to six SigenStor BATs are supported for floor installation and up to two for wall installation.
- When installing three or more SigenStor BATs on the floor, use Lift.
- Multiple SigenStor BATs can be installed onsite based on the actual configuration.
- If the floor is prone to stagnant water, please set up a waterproofing platform or install it on the wall.
- The equipment is heavy, do not slip off when handling the equipment to avoid the equipment falling and injuring the operator.
- SigenStor BAT is forbidden to be used after falling, please buy a new one.
- Do not drag the equipment during installation.

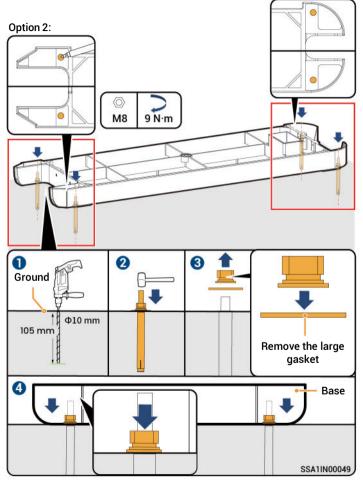
4.1 Floor Installation

If the bubble level is not centered, use a Leveling plate to adjust.



2 There are two installation methods for the Base. Please refer to the actual product received for detailed instructions.



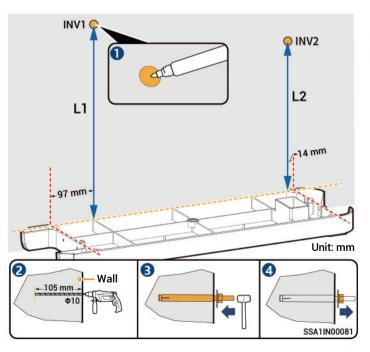


3 INV1 is the mounting hole on the left side of the inverter for wall installation, while INV2 is the mounting hole on the right side for wall installation.

| Calculation | formula | for | punch | height: |
|-------------|---------|-----|-------|---------|
|-------------|---------|-----|-------|---------|

| L1 and L2 should be measured from the upper surface of the base: L1 = N x 270 mm + 261 mm \pm 3 mm L2 = N x 270 mm + 254 mm \pm 3 mm |
|--|
| L1 = N x 270 mm + 261 mm ± 3 mm |
| L2 = N x 270 mm + 254 mm ± 3 mm |

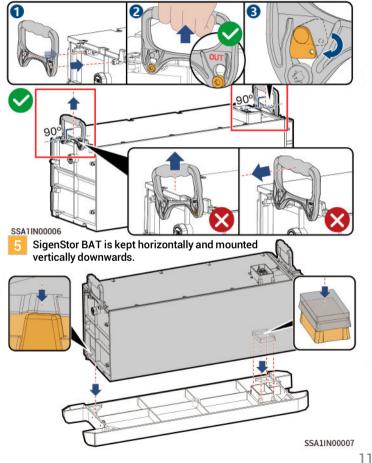
Note: N is the number of SigenStor BATs and N ranges from 3 to 6.



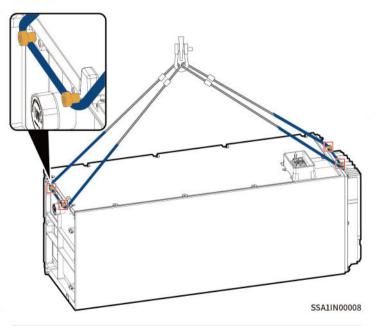
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Before installing the handle, please use a Torque socket wrench to measure the screws and confirm that the screws on Sigen BAT are securely tightened with a torque of 4.5 N·m (±0.45 N·m).



- 6 For details about how to place the second SigenStor BATs, see Steps 4 5 .
- 7 If three or more SigenStor BATs are to be installed, use a Lift. For details about the hoisting rope binding scheme, see the figure.



Tips

During lifting operations, the area where the sling comes in contact with the equipment should be wrapped with a protective layer to avoid damage to the equipment.



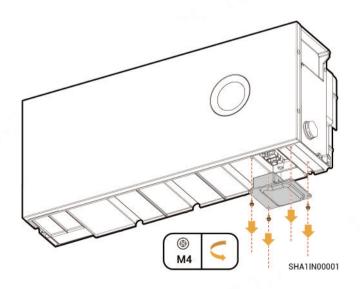
8 Arrange SigenStor EC, SigenStor AC or Sigen Hybrid.

SigenStor EC or SigenStor AC

For details, see Step 4.

Sigen Hybrid

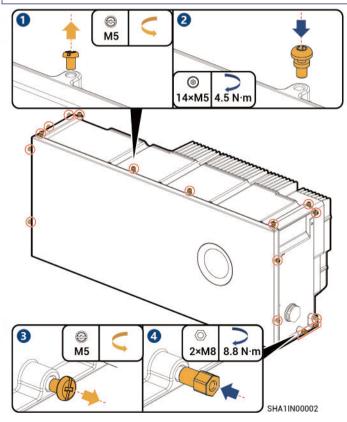
Remove the IP protection cover at the bottom.



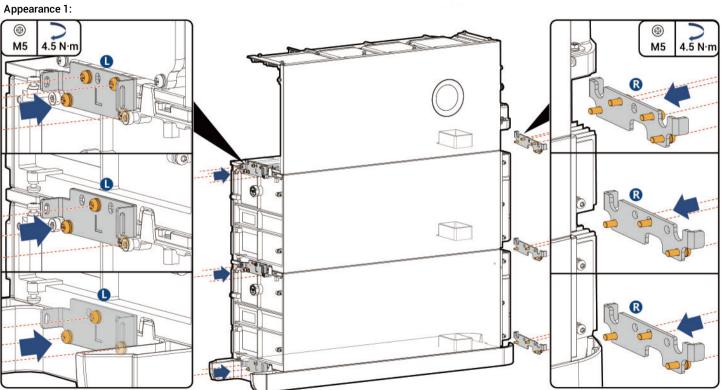
Install the chuck screws of the decorative parts, and arrange them as described in Step 5.

Tips

The chuck screws are packed in the extension package.



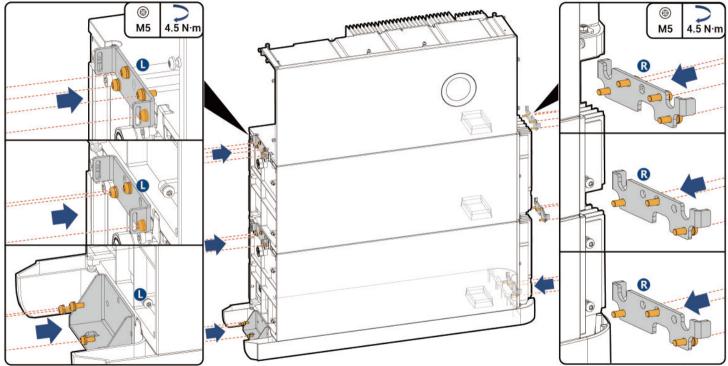
Base bracket has two versions in terms of appearance. The actual product shall prevail. The installation method for both versions remains the same.



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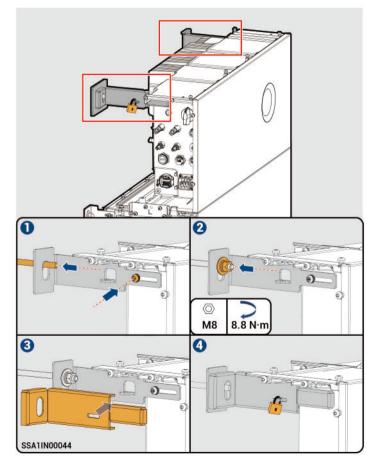
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10 Steps **3** and **4** are optional and can effectively prevent theft.



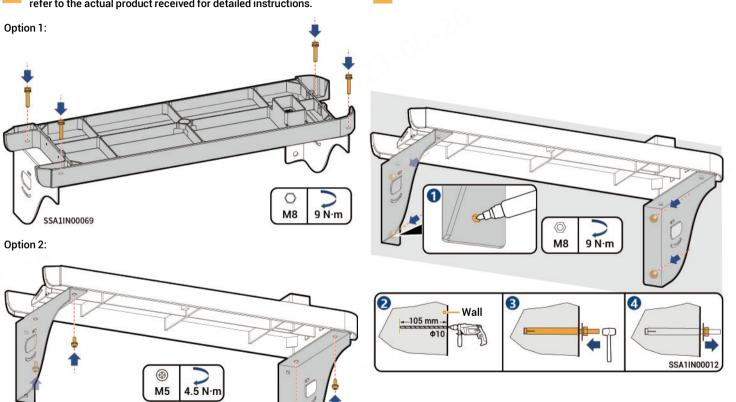
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4.2 Wall Installation



There are two installation methods for the Angle Bracket. Please refer to the actual product received for detailed instructions.

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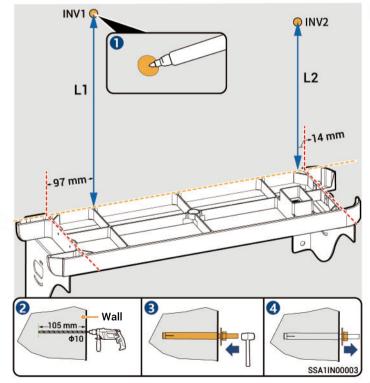
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Calculation formula for punch height:

- L1 and L2 should be measured from the upper surface of the base:
- L1 = N x 270 mm + 261 mm ± 3 mm
- L2 = N x 270 mm + 254 mm ± 3 mm

Note: N is the number of SigenStor BATs and N is 1 or 2.



- For details about how to place the SigenStor BAT, see Steps 4 5 in Section 4.1 Floor installation.
- 5 For details about how to place the inverter, see Steps 8 in Section 4.1 Floor installation.
- For the installation of the Base bracket , please refer to Step 9 in Section 4.1 Floor Installation.
- For the installation of the fasteners for a wall–mounted inverter, please refer to Step 10 in Section 4.1 Floor installation.

5 Cable Connection and Component Installation

🚹 Warning

Before connecting cables, ensure that DC SWITCH is in the OFF state, and the front switch of the AC line is off.

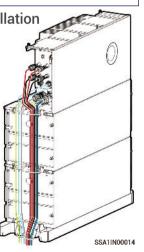
Tips

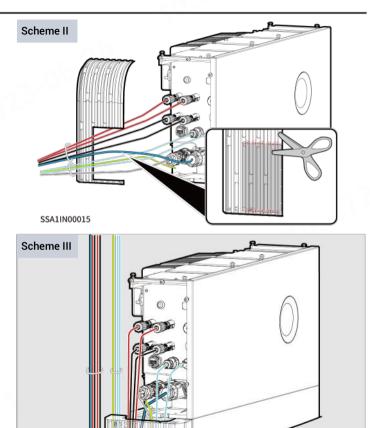
- The cable colors in the figure are used only to distinguish different lines. The cable colors are based on actual conditions.
- · Bind the power cable separately from the signal cable.
- Bind the power cable separately from the signal cable.
- There are three routing schemes, Select them based on the actual situation.
- PVC wiring ducts or PVC conduits are recommended to wrap cables outside decorative parts. 50 × 30 mm PVC wiring ducts are recommended and PVC conduits with diameter not less than Φ63 are recommended.

5.1 Recommended Cabling installation

Scheme I

- AC output cable
- RS485 signal cable
- Protective ground cable
- RJ45 cable
- DC input cable





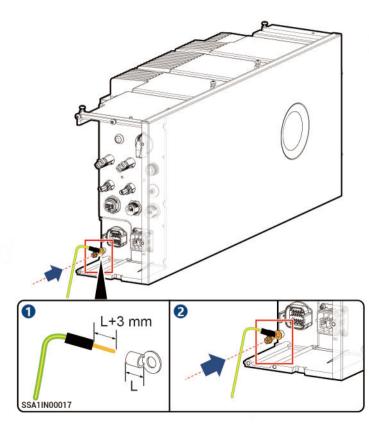
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5.2 Protective Ground Cable of Inverter

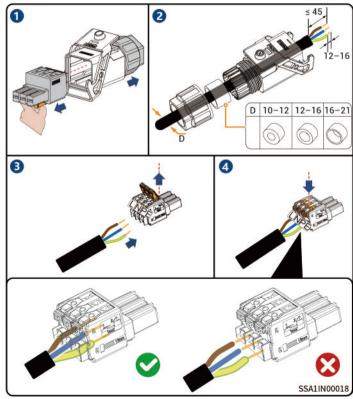
5.3 AC Output Cable of Inverter

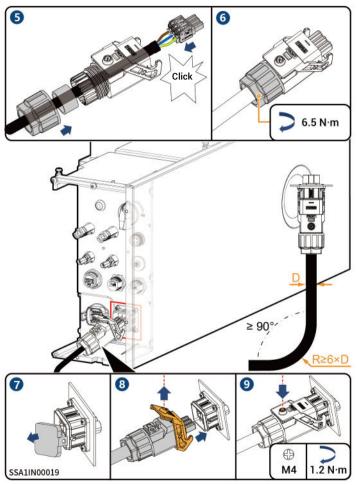
Tips

The protective ground wire should be grounded in close proximity.



Unit: mm





5.4 COM terminal of the inverter

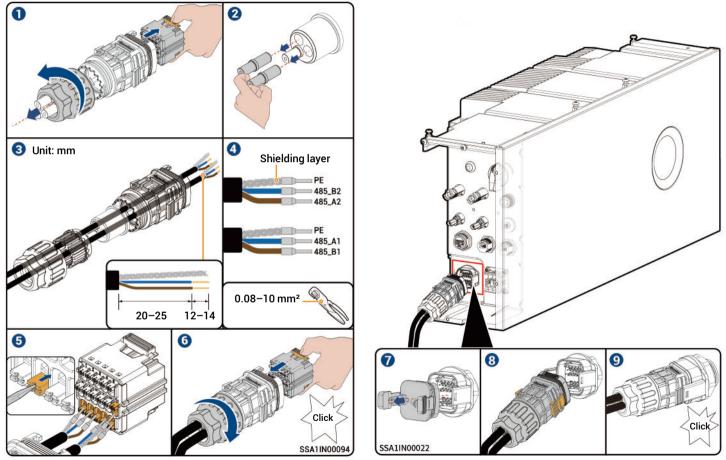


Tips

- Power sensors need to be purchased from our official channel.
 The appearance and specific wiring of the power sensor can be found in the instruction manual delivered with the case.

| Description | Interface definition | COM terminal of the inverter | Sigen Sensor SP-DH (SDM230Modbus) | Sigen Sensor SP-CT120-DH (SDM120CT 40mA) |
|---|----------------------------|------------------------------|--------------------------------------|---|
| (Reserved) DO1, connected to third party | Dry contact 1 – Common | 1 | - | - |
| intelligent electric equipment, such as switch control and heat pump | Dry contact 1 – NO | 2 | - | - 0 - |
| (Reserved) DO2, connected to third party | Dry contact 2 – Common | 3 | - | _ |
| intelligent electric equipment, such as switch control and heat pump | Dry contact 2 – NO | 4 | - | |
| ~~~ | DI1, digital input 1 | 5 | - | |
| | DI2, digital input 2 | 6 | - 0 | - |
| (Reserved) For power scheduling, such as DRM | DI3, digital input 3 | 7 | | - |
| and Ripple control | DI4, digital input 4 | 8 | - × | - |
| | DI5, digital input 5 | 9 | - | - |
| | Signal GND | 10 | - | - |
| | PE signal shielding ground | 12 | - | - |
| RS485-2, COM port used to access the power sensor | RS485 signal 2_B- | 13 | 6 | 9 |
| | RS485 signal 2_A+ | 14 | 5 | 10 |
| RS485-1, custom port. It can be used to connect | PE signal shielding ground | 11 | - | - |
| to third-party EMS controllers, electricity meters | RS485 signal 1_A+ | 15 | - | - |
| or heat pump equipment, etc. | RS485 signal 1_B- | 16 | - | _ |

5.4.1 RS485 Signal Cable of inverter



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5.5 RJ45 Cable of Inverter

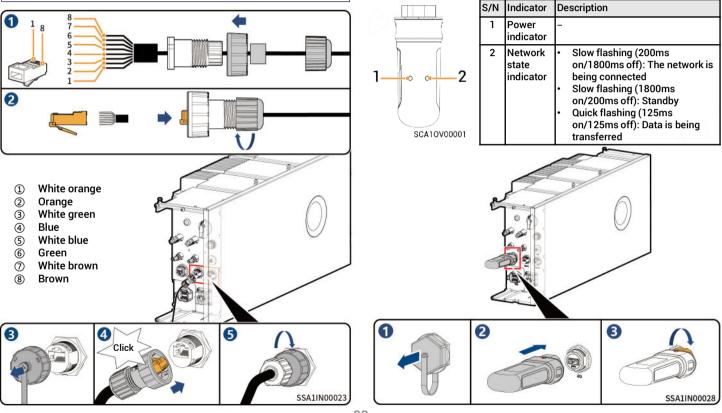
Tips

- RJ45 cables are EIA/TIA 568B standard cables.
- Two RJ45 Ethernet ports, one of which is connected to the router, and the other is connected to other devices (e.g., inverters, gateways, etc.).

5.6 Sigen CommMod Installation

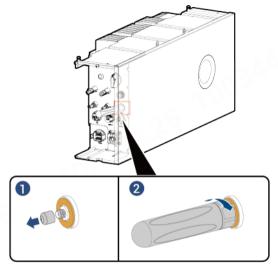
Tips

Sigen CommMod is required for 4G communication.



Tips

WLAN communication requires the installation of WLAN antenna stick.

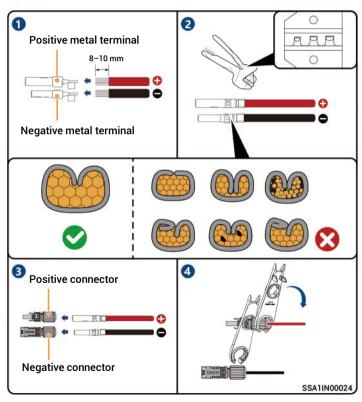


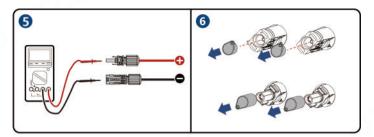
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5.8 DC input cable of Inverter

Tips

The DC cable is connected to the inverter from the PV string. Ignore this section in case of SigenStor AC inverters.





Caution

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• If the voltage is negative, the polarity is incorrect. Rectify the fault in time.

Click

If you have only one DC input, connect it to PV1.

6 Post-installation Check

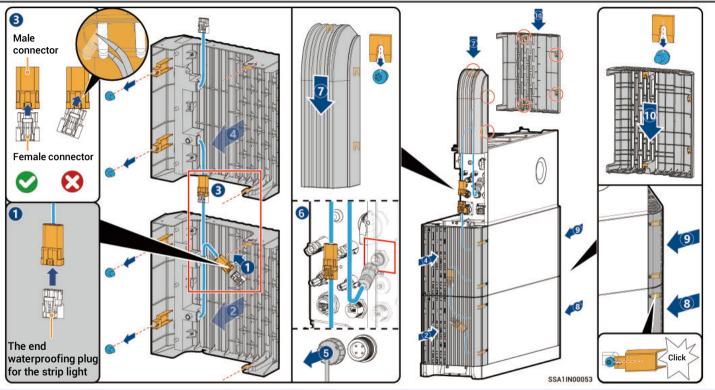
| S/N | Check Item |
|-----|---|
| 1 | The equipment has been securely installed. |
| 2 | Ground cables, DC cables, signal cables, etc. are installed accurately without leftovers. |
| 3 | The cable fastening screws or terminals are properly installed. |
| 4 | There are no sharp spikes or acute angles at the cut point of the cable tie. |
| 5 | DC SWICH is in the OFF state. |
| 6 | Ports that are not in use have waterproof covers or plugs installed. |
| 7 | There is no construction left inside or outside the equipment. |

After confirmation, install the SigenStor BAT and SigenStor EC/SigenStor AC/Sigen Hybrid decorative covers.



SSA1IN00038

7 Installation of the Decorative Cover

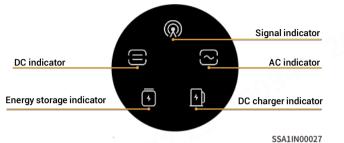


Caution

- The end waterproofing plug for the strip light in step 1 is at the lower end of the decoration on the left side of the inverter, please remove it for spare.
- If the strip light shows abnormal status when the device is powered on, check if the pins in the male connector are tilted. If tilted, straighten them out, reconnect the corresponding male and female connectors, or reconnect the terminal in Step 6 to resume normal operation.

8 Equipment Power-On

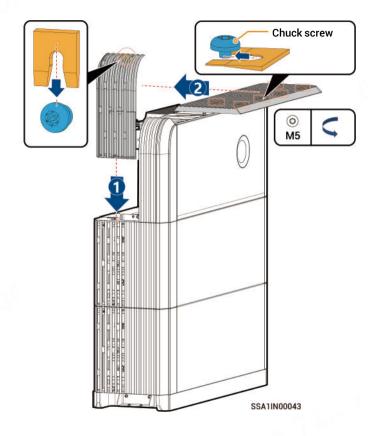
- Turn on the front switch of the equipment.
 Rotate DC SWITCH to ON. (This step is not necessary for SigenStor AC)
- 3. Observe the indicators on the front side of the inverter to learn about the equipment status.



| Indicator | Color | State | Description |
|-----------|-------|-----------|---|
| | | Always on | The DC side is connected but not running. |
| | | Always on | The DC side is running. |
| | | - | The DC side is not connected. |
| | | Flash | The DC side is faulty. |
| | | Always on | The inverter is faulty. |
| | | Always on | The AC side is connected but not running. |
| ت | | Always on | Grid-connected operation. |
| | | Always on | Off-grid operation. |
| | | - | The AC side is not connected. |
| | | Flash | Off-grid overload operation. |
| | | Flash | The AC side is faulty. |
| | | Always on | The inverter is faulty. |

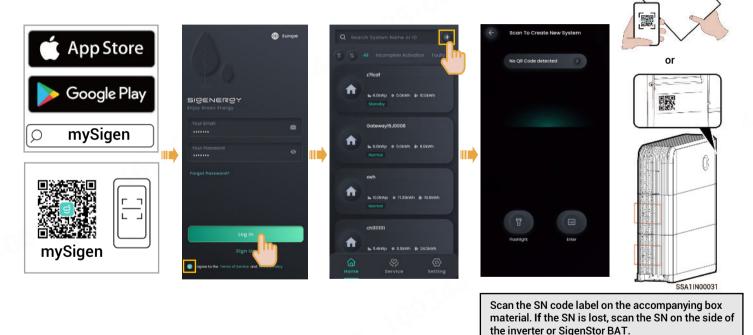
| Indicator | Color | State | Description |
|--------------|-------|-----------|---|
| , | | Always on | All SigenStor BATs are connected but not running. |
| Ú | | Flash | SigenStor BAT is charging. |
| | | Flash | SigenStor BAT is discharging. |
| | | - | All SigenStor BATs lie dormant. |
| | | Flash | Some SigenStor BATs are faulty. |
| | | Always on | All SigenStor BATs are faulty. |
| \bigcirc | | - | The management system is not connected. |
| | | Flash | Connected to local App. |
| | | Always on | Connected to the management system using an FE or WLAN. |
| | | Always on | Connected to the management system over 4G. |
| | | Flash | Insufficient traffic for Sigen CommMod. |

After powering on the equipment, install the remaining decorative covers.



9 Download and create new system for mySigen APP

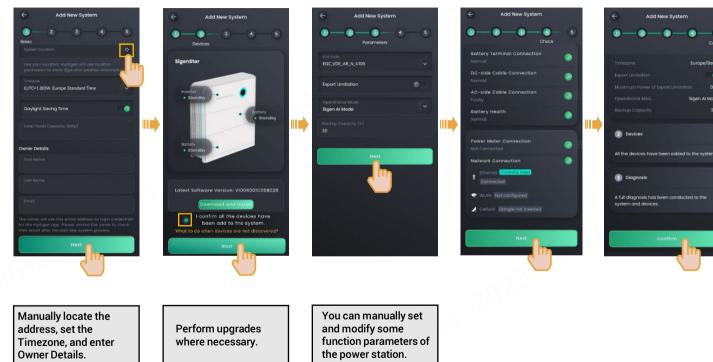
- Please enter the "Partner" → "Register Now" at the Company's official website (<u>https://www.sigenergy.com</u>), and complete the account registration based on facts.
- 2 Download the mySigen App and create new system for the device.



Tips

The following steps are different when the equipment has already been connected or not connected to the internet (that is, FE and 4G communication fault), as described below.

Already connected to the internet:



Upon completion of the new system creation, the installer shall inform the owner to check its "sigencloud" e-mail within 24 hours and proceed with activating its account.

Add New System

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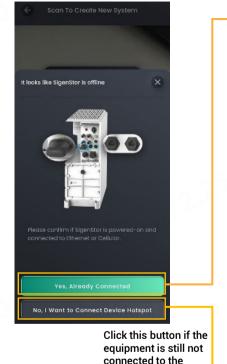
Confir

0kW

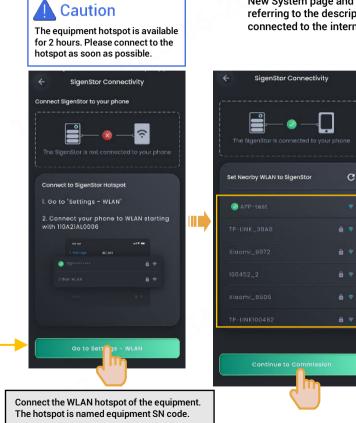
Europe/Berlin

Sigen Al Mode

Not connected to the internet (that is, FE and 4G communication fault):

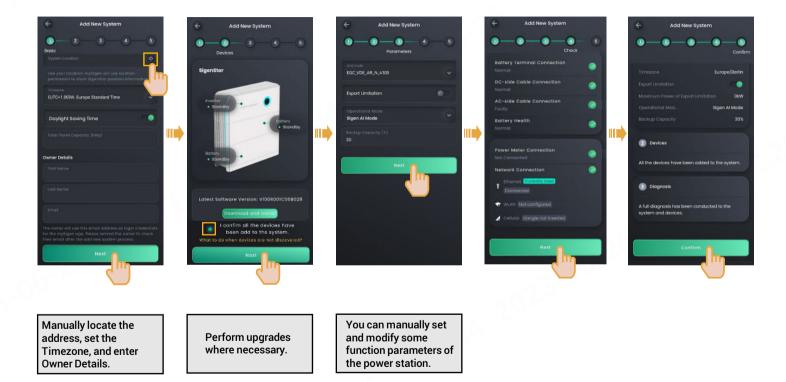


internet



If the equipment has already been connected to the internet, click this button and go to the Create New System page and perform operations by referring to the description in the "already connected to the internet" section.

> Connect to the owner's WLAN hotspot.



Upon completion of the new system creation, the installer shall inform the owner to check its "sigencloud" e-mail within 24 hours and proceed with activating its account.

Sigenergy Technology Co., Ltd.



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